results: We assessed the incidence of intra-atrial clot in AF patients who received Coumadin for >3 weeks but had sub-therapeutic INR on ≥2 measurements in the last three weeks before the scheduled cardioversion. From 1/1996 to 6/2001, 182 consecutive patients (105 men, 77 women, mean age 67±12 years) with sub-therapeutic INR underwent transesophageal echocardiography (TEE). An intra-atrial clot was detected in 18 (9.9%) patients. None of the 21 patients with left atrial diameter ≤40 mm had intra-atrial clot, yielding an atrial-clot incidence of 11.2% in AF patients with left atrial diameter >40 mm. The left atrial diameter was significantly larger in patients with intra-atrial clot versus those without intra-atrial clot (50.2±6.1 versus 46.4±8.0 mm, p<0.05). There was no significant difference in left ventricular ejection fraction comparing patients with and without intra-atrial clot (51±6% versus 52±12%, p=0.91). A single therapeutic INR one week before TEE did not predict absence of intra-atrial clot (intra-atrial clot was found in 13/90 patients with INR >2.0 versus in 5/92 patients with INR<2.0). The scheduled cardioversion was postponed in all patients with intra-atrial clot.
Conclusion: The incidence of intra-atrial clot in patients on conventional anticoagulation but with sub-therapeutic INR is close to that of the un-anticoagulated patients, suggesting the need for TEE before AF cardioversion unless the patient has a normal left atrial diameter.

1163-67 Maintenance of Sinus Rhythm After Cardioversion Is Dependent on Immediate Improvement of Left Ventricular Systolic and Diastolic Function

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Background: An increase in ejection fraction after cardioversion from atrial fibrillation (AF) has been attributed to improvement of atrial mechanical function, but patients maintaining sinus rhythm and those with ultimate reversion to AF may have different mechanisms. Methods: To test whether immediate improvement in left ventricular (LV) systolic function after cardioversion is the result of return of atrial function or the result of improvement in LV diastolic function, we measured LV volumes, transmitral flow velocities, and pulmonary venous flow velocities before and 24 hours after elective cardioversion in 17 patients. ALOGIQ 500 (GE Yokogawa Medical System Ltd) was used. All patients had duration of AF more than 1 month, and received bepridil (150 mg/day) throughout the study. Results: Ten patients maintained sinus rhythm more than 1 month after cardioversion (SR) and seven showed the reversion to AF within 1 month (ReAF). Immediately following cardioversion, ejection fraction and LV stroke volume (SV) increased significantly only in the SR group (118±21%*, 148±16%*, *p<0.05 vs. baseline), but not in the ReAF group (99±13%, 103±9%). In contrast, relative increases in cycle length were comparable. Transmitral peak A-wave velocity at 24 hours did not differ significantly between the groups (SR, 36.6±13.1cm/s; ReAF, 32.2±11.3cm/s), nor correlated with the improvement of SV after cardioversion (r=0.20). The increases in SV of the SR group were attributable to those in LV end-diastolic volume (SR, 123±22%#; ReAF, 103±16%, #p<0.05 vs. ReAF), but not the changes in LV end-systolic volume (SR, 102±31%; ReAF, 107±27%). Moreover, the ratio of S-wave /D-wave of the pulmonary venous flow velocities at 24 hours was comparable (SR, 0.66±0.26; ReAF, 0.74±0.44). Conclusion: Maintenance of sinus rhythm after cardioversion is suggested to be dependent on the immediate improvement of LV diastolic, as well as systolic function.

1163-68 The Exact Time Course of Recovery of Left Atrial Appendage Function Following Reversion of Chronic Atrial Flutter to Sinus Rhythm

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Background: Left atrial appendage (LAA) stunning is thought to be associated with thrombus formation and embolic stroke. This phenomenon is observed not only following cardioversion of atrial fibrillation (AF) but also that of atrial flutter (AFL). Therefore, thromboprophylaxis for AFL requires anticoagulation prior to, and following, cardioversion, but little information has been obtained how long anticoagulation is required following cardioversion of chronic AFL.
Methods: Twelve patients with chronic AFL (duration: 30 ± 41 months, range: 4-134) undergoing curative radiofrequency ablation (RFA) were enrolled. No patient had been documented AF before the study. LAA velocities, LAA fractional area change and spontaneous echo contrast (SEC) were assessed using a transesophageal echocardiography before and within 24 hours, 1 week and 2 weeks following RFA.
Results: Within 24 hours following RFA, LAA velocities and LAA fractional area change decreased significantly. LAA velocities and LAA fractional area change increased markedly through 2 weeks following RFA. LAA velocity was over 32 cm/s in all patients at 2 weeks following RFA. Six (50%) of 12 patients developed SEC within 24 hours following RFA. SEC had resolved in all patients at 2 weeks following RFA. (see table)
Conclusion: All indices of thromboembolic risk improved within 2 weeks following reversion of chronic AFL to sinus rhythm. After cardioversion of chronic AFL, patients may require anticoagulation up to 2 weeks.

	before RFA	within24hrs	1week	2weeks
LAA velocities (cm/s)	42±8	19±7*	40±16†	54±14#
range	31-56	8-31	14-67	32-86
LAA fractional area change (%)	46±7	22±9*	39±10†	48±6§
Documented SEC (n)	0	6 (50%)	2 (17%)	0

*p < 0.01 vs before RFA, †p < 0.01 vs within24hrs, #p < 0.01 vs 1week
§p < 0.05 vs 1week

POSTER SESSION

1164 Stress Echocardiography III

Tuesday, March 19, 2002, 9:00 a.m.-11:00 a.m.
Georgia World Congress Center, Hall G
Presentation Hour: 10:00 a.m.-11:00 a.m.

1164-59 Stress Echo in Chest Pain Unit: The SPEED (Stress Pharmacologic Echocardiography in Emergency Department) Trial

Gigliola Bedetti, Emilio Pasanisi, Giancarlo Tintori, Lucas Fonseca, Simone Tresoldi, Calogero Minneci, Andres Orlandini, Bruno Ghelarducci, Raffaele Bugiardini, Eugenio Picano, *CNR, Institute of Clinical Physiology, Pisa, Italy, Cardiology Dept., Imola Hospital, Imola, Italy.*

Background: emergency room (ER) evaluation of patients with acute chest pain and non diagnostic electrocardiography (ECG) remains a frequent and difficult problem. Aim: to assess the safety and prognostic implication of stress echocardiography in the ER chest pain unit (CPU). Methods: 482 patients (287 males/age 62±11 years) with acute chest pain and negative serial cardiac markers, and ECG recordings and normal/unchanged resting left ventricular function, underwent stress echo (dipyridamole n= 451, dobutamine n=11, exercise n=20) within 12-36 hours after admission. Six echo labs quality-controlled for stress echo reading entered the study. Follow-up was obtained in all patients after 8 ± 6 months. Results: no significant adverse events were observed during the tests. Feasibility was 99%. Stress echocardiography was negative in 448 and positive in 34 patients. Patients with negative stress echocardiography were discharged with no or unchanged anti-ischemic medication. Patients with positive stress echo were admitted to coronary care unit. In 30 of them coronary angiography was performed and showed significant coronary artery disease in 28: one vessel in 11, two vessel in 4, three vessel disease in 11 and left main disease in 2 patients. There were 30 events in the follow-up: four (two acute myocardial infarction and two unstable angina requiring revascularization) in the 448 pts with negative and 26 (25 unstable angina requiring revascularization and one acute myocardial infarction) in the 34 patients with positive stress echo (0.89% vs 76.5%, p<.001). The negative predictive value of stress echocardiography for subsequent events was > 99%. Conclusion: stress echocardiography is feasible, safe and effective tool for early stratification of patients with acute chest pain and non-diagnostic ECG, cardiac markers and resting echo admitted to the ER.

1164-60 Noninvasive Assessment of Left Anterior Descending Artery Coronary Flow Reserve by Transthoracic Echocardiography: Feasibility and Results

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Background: Coronary flow reserve (CFR) is a key physiological parameter which can be evaluated noninvasively by transthoracic echocardiography (TTE) during vasodilator stress. **Aim**: To assess the feasibility and physiologic meaning of TTE assessment of CFR. **Methods**: Starting June 1, 2000 to August 1, 2001, 239 consecutive patients (12 males; age=67±19 years) were referred for stress echocardiography. In all, TTE (S12 probe, HP 5500, Agilent technology) evaluation of distal left anterior descending (LAD) coronary artery was attempted at baseline and following dipyridamole (0.84 mg/kg). Wherever color-coded LAD blood flow from the baseline could not be obtained, contrast enhancement with Levovist (Schering AG) was used. Peak diastolic coronary flow velocity of LAD was recorded by pulsed Doppler under the guidance of Color Doppler flow mapping. CFR was calculated as the ratio of dipyridamole / rest peak diastolic flow velocity. **Results**: The overall feasibility was 93% in the first 100 patients and rose to 98% in the latter 139 (p<.05). The need for contrast injection was 38% in the first 100 and 18% in the latter 139 patients (p<.01). In patients with complete clinical and angiographic characterization, CFR values were 3.2±0.2 in control group (n=14); 2.4 ± 0.4 in Syndrome X (n= 43); 2.5±0.3 in patients evaluated early after CABG with left internal mammary artery on LAD (n=28); 2.3 ± 0.4 in patients evaluated early after PTCA (n=45); 1.4±0.2 in critical (>70%) native LAD stenosis (n=24); 1.85±0.22 in dilated cardiomyopathy (n=8); 2.01±0.2 in hypertrophic cardiomyopathy (n=9); 1.8±0.3 in aortic stenosis (n= 7). **Conclusion**: Noninvasive evaluation of CFR by TTE is highly feasible in the echo lab during vasodilator stress echo. After a limited learning curve, contrast injection is rarely needed - further simplifying and reducing the cost of examination. Physiologically congruent results of potential clinical value can be obtained during vasodilator stress echo in different pathophysiological conditions, ranging from coronary artery disease to cardiomyopathy.

1164-61 Color Kinetics During Contrast-Enhanced Dobutamine Stress Echocardiography: Its Feasibility and Applicability

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Background: Accurate interpretation of dobutamine stress echocardiography (DSE) needs expertise. Color kinetics (CK) allows objective assessment of wall motion (WM), and its feasibility and accuracy would enhance under harmonic imaging with contrast agents. Methods: To explore its utility, we had performed CK in 36 unselected patients during contrast-enhanced DSE. After bolus injection of Levovist, we acquired CK image in apical 4 and 2 chamber view at baseline and peak stress using ultraharmonic mode (SONOS5500, S3 probe). Quad screen format with second harmonic imaging after another injection of Levovist was also obtained as a gold standard. Regional wall motion